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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/893,798 | 06/28/2001 | Fredrik Larsson | 230.010 | 7090 |

23598 7590 08/03/2004

BOYLE FREDRICKSON NEWHOLM STEIN & GRATZ, S.C.
250 E. WISCONSIN AVENUE
SUITE 1030
MILWAUKEE, WI 53202

EXAMINER

KHATRI, ANIL

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2124

DATE MAILED: 08/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/893,798

Applicant(s)

LARSSON ET AL.

Examiner

Anil Khatri

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2001.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 and 36-41 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-34, 36-41 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "Interpreter for Executing Computer Programs and Method for Collecting Statistics".

The summary of invention of the disclosure is objected to because it contains verbatim language as recited in claim language. Correction is required. See MPEP § 608.01(b).

Content of Specification

- (a) Title of the Invention: See 37 CFR 1.72(a) and MPEP § 606. The title of the invention should be placed at the top of the first page of the specification unless the title is provided in an application data sheet. The title of the invention should be brief but technically accurate and descriptive, preferably from two to seven words may not contain more than 500 characters.
- (b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.
- (c) Statement Regarding Federally Sponsored Research and Development: See MPEP § 310.
- (d) Incorporation-By-Reference Of Material Submitted On a Compact Disc: The specification is required to include an incorporation-by-reference of electronic documents that are to become part of the permanent United States Patent and Trademark Office records in the file of a patent application. See 37 CFR 1.52(e) and MPEP § 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text were permitted as electronic documents on compact discs beginning on September 8, 2000.

Or alternatively, Reference to a "Microfiche Appendix": See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.
- (e) Background of the Invention: See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:
 - (1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the

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applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."

- (2) Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."
- (f) Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.
- (g) Brief Description of the Several Views of the Drawing(s): See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.
- (h) Detailed Description of the Invention: See MPEP § 608.01(g). A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.
- (i) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet or electronic page (37 CFR 1.52(b)(3)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).
- (j) Abstract of the Disclosure: See MPEP § 608.01(f). A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a

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separate sheet following the claims. In an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an abstract commencing on a separate sheet if an abstract was published with the international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).

- (k) Sequence Listing. See 37 CFR 1.821-1.825 and MPEP §§ 2421-2431. The requirement for a sequence listing applies to all sequences disclosed in a given application, whether the sequences are claimed or not. See MPEP § 2421.02.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 36-41 are rejected under 35 U.S.C. 101 because they disclose a claimed invention that is an abstract idea merely manipulation of data structure and unable to produce a useful results so that its functionality can be realized. See *In re Warmerdam* 33 F.3d 1354, 31 USPQ2d 1754 (Fed. Cir 1994). The claimed invention is directed to non-statutory subject matter therefore, claims 36-41 are rejected under 35 U.S.C. 101.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-34 and 36-41 are rejected under 35 U.S.C. 102(b) as being anticipated by

Bennett et al. USPN 4,506,325.

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Regarding claims 1, 15, 29, 32, 36-39 and 41

Bennett et al teaches,

- statistics means for collecting and recording statistics of how often service routines are executed and what parameters they had (see abstract);
- clustering means for grouping (SR89, SR17...SR6; SR4, SR34.. .SR16) frequently used service routines with program jumps between each other in a program function with regard to a predetermined frequency value for determining such service routines (column 27-28, see nesting structure lines 15);
- statistics means recording the frequency of service routines executed after a function (column 8, lines 1-12); and
- encoding means for assigning a frequently used service routines a shorter code than service routines (SR3, SR57, SR94. . .SR64) executed after a said function, thus gathered statistics, from an execution, control an encoding to optimize frequently used service routines for faster execution speed (column 8, lines 13-33, “ encoding which permits... conversion table”).

Regarding claims 2, 16, 30, 31, 33 and 40

Bennett et al teaches,

- more than one program function is grouped by grouping (SR89, SR17. ..SR6', SR4, SR34. . .SR16) frequently used service routines with jumps between each other in the same function, thus minimizing jumps between functions (column 8, lines 1-12, jump operator... discussion below”, column 37, lines 45-50, end loop”).

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Regarding claims 3, 17 and 34

Bennett et al teaches,

- encoding means provides for a reduced bandwidth to an electronic memory when fetching intermediate code, as a frequently executed instruction is shorter (column 53, lines 33-43, “formulating an intermediate... reflex descriptor”).

Regarding claims 4 and 18

Bennett et al teaches,

- statistics is collected before a simulator is compiled (column 19, lines 30-37, “fetching an encoded... DATA READY”).

Regarding claims 5 and 19

Bennett et al teaches,

- statistics is collected while a simulator is running, in which case the simulator dynamically updates a function with service routines used to simulate an instruction set (column 19, lines 30-37, “fetching an encoded... DATA READY”).

Regarding claims 6 and 20

Bennett et al teaches,

- statistics and the encoding provides that a realistic instruction set which is translated to service routines can be written in a high-level programming language for a specific simulator task (column 28, lines 15-17”).

Regarding claims 7-12 and 21-26

Bennett et al teaches,

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- the interpreter is provided to be written in the standard ISO C through said statistics and encoding(column 3-4, lines 53-67 and 1-42 respectively”), therefore it is obvious to meet ISO standard for the product.

Regarding claims 13 and 27

Bennett et al teaches,

- Improves instructions cache performance by placing frequent code in a sequential block due to a common function for service routines (column 5, lines 35-46, “ a more efficient... define that instruction”, column 8, lines 14, “encoding which permits...”).

Regarding claims 14 and 28

Bennett et al teaches,

- It is used by an emulator (column 4, lines 58-60).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


- USPN 6351844
- USPN 6631515
- USPN 6463582.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anil Khatri whose telephone number is 703-305-0282. The examiner can normally be reached on M-F 8:30-5:00 PM.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



ANIL KHATRI
PRIMARY EXAMINER